

PEIXOTOA FLORIBUNDA (MALPIGHIACEAE), A NEW SPECIES FROM PARAGUAY

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ABSTRACT. A new species of *Peixotoa* (Malpighiaceae) from eastern Paraguay, *P. floribunda* C. Anderson, is described and illustrated.

Peixotoa Adr. Juss. (Malpighiaceae) is a genus of vines and shrubs characterized by distinctive, heart-shaped stipules; flowers with large, yellow, often fringed petals; and samaras with an elongate dorsal wing and two lateral winglets (Anderson 1982). Its range extends over much of Brazil south of the Amazon region and into adjacent Bolivia and Paraguay. The inflorescence units are 4-flowered umbels, which are usually arranged in compound dichasia or thyrses. In some species the secondary and tertiary inflorescence axes are suppressed at more distal nodes, such that the umbel is sessile in the leaf axil; the terminal node then bears 3 umbels and thus is 12-flowered. Recent collecting activity in eastern Paraguay yielded an additional species, here described, in which the inflorescence is so modified. The genus now comprises 29 species. Much of the range of *Peixotoa* is still only poorly known floristically, and more undescribed species may yet be discovered.

Peixotoa floribunda C. Anderson, sp. nov.—TYPE: PARAGUAY. Alto Paraguay: Parque Nacional Defensores del Chaco, Agua Dulce area, 19°58'49"S, 59°44'25"W, 14 Feb 1999, *Zardini & Godoy 50346* (holotype: MICH!; isotype: MO!). Fig. 1.

Frutex scandens. Stipulae 4–7 mm longae et latae, acutae, caducae. Petioli 3–8 mm longi, dense velutino-tomentosi. Laminae 6–11 cm longae, 4.5–7 cm latae, late ellipticae vel ovatae, supra velutinae, subtus tomentosae, basi juxta costam biglandulosae. Inflorescentia terminalis vel axillaris, ramis secundariis nodorum distaliorum multum redactis; umbellis 2 in nodis subterminalibus, umbellis 3 in nodis terminalibus, pedunculis secundariis ca. 2 mm longis vel absentibus. Bractee bracteolaeque praesentes. Pedicelli 9–12 mm longi. Limbus petalorum lateralium 9–10.5 mm longus, 8.5–9.5 mm latus, late obovatus vel suborbicularis, margine lacerato-glanduloso. Limbus petali postici ca. 5.5 mm longus, ca. 5 mm latus, late obovatus vel suborbicularis, margine dentato, glandulis capitatis ornato. Glandulae stamiodiorum apice et pagina abaxiali laeves. Styli subaequales, 3.5–3.7 mm longi, anticus parum inclinatus versus petalum posticum, postici divergentes. Samara ignota.

Scandent shrub ca. 1.5 m tall. Vegetative branches velutinous-tomentose when young, eventually becoming glabrous, the vesture of all structures white. Stem stipules 4–7 mm long and wide, cordate-triangular, entire, the apex acute, adaxially finely velutinous-tomentose in the distal 1/2–2/3 and in a band along the margin

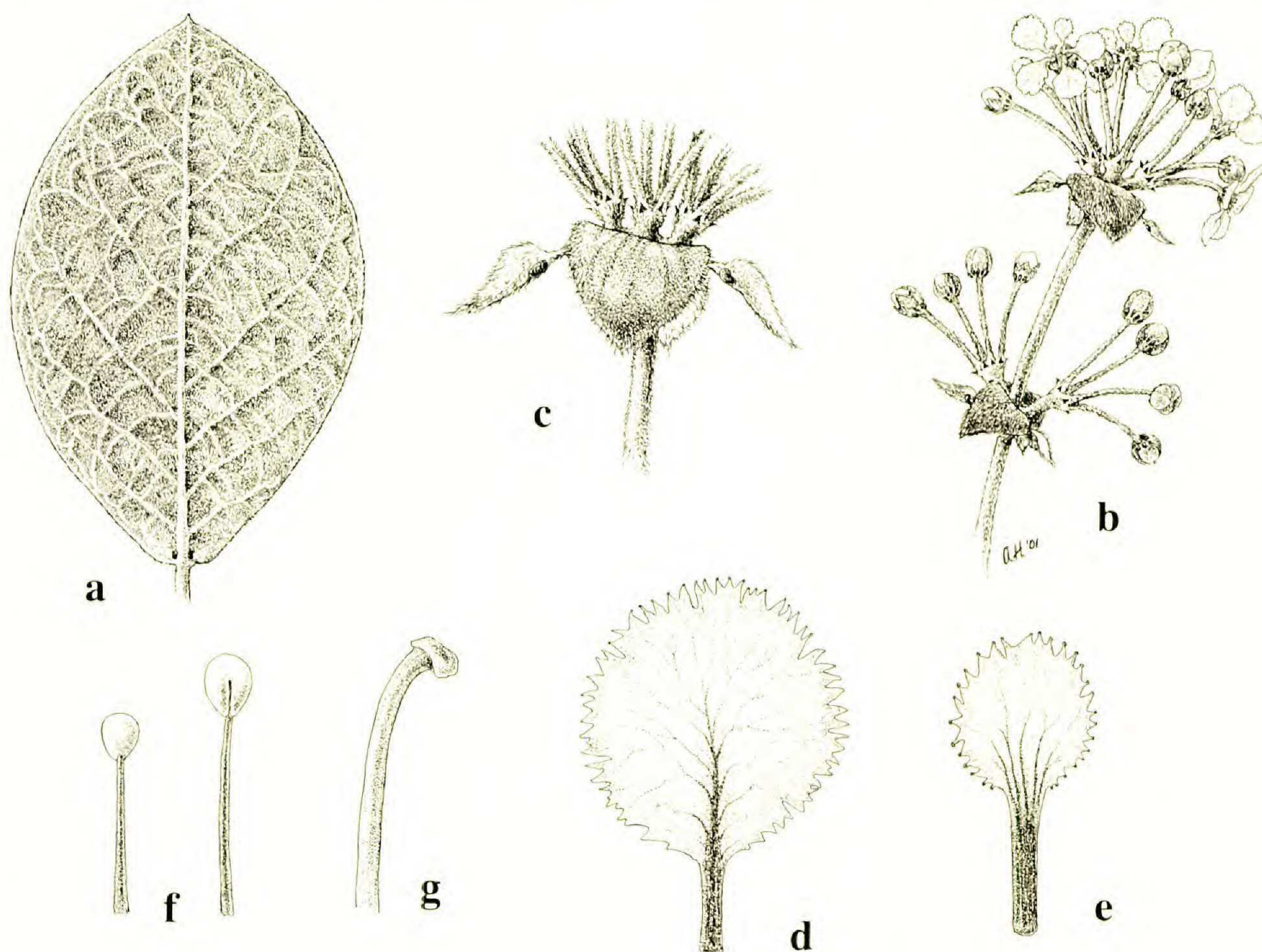


FIG. 1. *Peixotoa floribunda*. a. Stem leaf, abaxial view, $\times 0.5$. b. Flowering branch, $\times 1.5$. c. Base of a distal umbel with a pair of stipules and a pair of inflorescence leaves, $\times 3$. d. Lateral petal, $\times 3$. e. Posterior petal, the "flag," $\times 3$. f. Distal portions of posterior-lateral staminode (in abaxial view, left) and anterior staminode (in adaxial view, right), $\times 5$. g. Distal portion of anterior style, $\times 7.5$. (Based on Zardini & Godoy 50346.)

but otherwise glabrate to glabrous, abaxially densely velutinous-tomentose, caducous, inflorescence stipules like the cauline, eventually deciduous. Stem leaves with the petioles 3–8 mm long, densely velutinous-tomentose; laminas 6–11 cm long, 4.5–7 cm wide, broadly elliptical to ovate, apex acute, base narrowly truncate, adaxially velutinous, abaxially tomentose with the hairs mostly concentrated on the veins, a pair of sessile glands at the base at the costa or halfway on the petiole, each gland 0.8–1.6 mm in diameter. Inflorescence leaves with the petiole at least 1 mm long, laminas abruptly smaller than the cauline, the smallest at least 2.5 mm long, 0.8 mm wide, narrowly elliptical to narrowly triangular, apex acuminate to sometimes caudate, adaxially velutinous or sparsely so, abaxially densely velutinous-tomentose, a pair of glands at the base, each gland ca. 1 mm in diameter. Inflorescences terminal and axillary, at the proximal nodes with 2° axes present but 3° axes suppressed, at the more distal nodes both 2° and 3° axes suppressed and the umbels sessile or borne on secondary peduncles in the leaf axils, the terminal node always with 3 umbels; each umbel 4-flowered, primary peduncles absent, secondary peduncles up to 2 mm long or absent. Bracts 0.6–0.8 mm long, 0.4–0.6 mm wide, bracteoles 0.3–0.4 mm long, 0.2–0.3 mm wide, all triangular, essentially glabrous. Pedicels 9–12 mm long, densely velutinous-tomentose. Sepals 4.3–4.5 mm long, ca. 2 mm wide, adaxially the distal $1/2$ tomentulose and otherwise glabrous, abaxially densely velutinous-tomentose, glands on the lateral sepals 1.8–2 mm long. Claw of the lateral petals 2–2.5 mm long, ca. 0.3 mm wide, limb 9–10.5

mm long, 8.5–9.5 mm wide, broadly obovate to suborbicular, margin lacerate-dentate, the teeth up to 1 mm long, gland-tipped. Claw of the posterior petal ca. 4 mm long, ca. 0.5 mm wide, limb ca. 5.5 mm long, ca. 5 mm wide, broadly obovate to suborbicular, margin dentate, the teeth up to 0.7 (–1) mm long, capitate-glandular. Androecium of 5 stamens opposing the petals alternating with 5 staminodes opposing the sepals. Lateral stamens subequal, filaments 3.9–4.1 mm long, glandular connective ca. 0.6 mm long; posterior stamen filament ca. 2.4 mm long, arced toward the posterior petal, anther ca. 1 mm long, glandular connective ca. 0.6 mm long. Staminodes unequal; anterior filament ca. 4 mm long, exceeding the anterior-lateral two, anterior-lateral filaments ca. 3.5 mm long, exceeding the posterior-lateral two, posterior-lateral filaments ca. 3 mm long, inflexed between the posterior styles, anterior and anterior-lateral staminode glands ca. 1.1 mm long, posterior-lateral glands ca. 0.8 mm long, all glands with the apex and abaxial face smooth. Anterior and posterior styles subequal, 3.5–3.7 mm long, ca. 0.4 mm in diameter, anterior style slightly arced toward the posterior petal, posterior styles divergent, distally slightly curved inward; stigmas ca. 0.4 mm in diameter, terminal and slightly wider than the style apex. Mature fruits not seen; immature samaras with the lateral wings ca. 12 mm long, ca. 7 mm wide (probably fully developed), the dorsal wing not fully developed, ca. 2 cm long, ca. 1 cm wide.

Peixotoa floribunda is known only from the type and a second gathering (*Zardini & Godoy 50345*, MICH! MO!) collected at the same time and place in eastern Paraguay. Its range may well extend into Brazil. The large attractive flowers arrayed in elaborate inflorescences should draw the attention of future collectors in this region of South America. The type is of flowering material; the paratype has immature fruits. It is noteworthy that the anterior sepal of flowers of the type bear one gland (ca. 1.6 mm long), smaller than those on the lateral petals; the anterior sepal is eglandular in the paratype. Such occasional expression of sepal glands on the anterior sepal occurs in other species of *Peixotoa* as well as other genera of Malpighiaceae that normally have the anterior sepal eglandular.

The specialized inflorescence with suppressed secondary and tertiary branches distinguishes *P. floribunda* from the only other species of *Peixotoa* known from Paraguay, the common and widespread *P. reticulata*, an apomict notable for its indehiscent anthers containing aborted pollen. Two species, in addition to *P. reticulata*, occur in southwestern-most Brazil and southeastern-most Bolivia: *P. magnifica* C. Anderson and *P. cordistipula* Adr. Juss.; both have an unmodified inflorescence.

Other species with suppressed secondary and tertiary inflorescence branches and thus 12 flowers (3 umbels) instead of 4 flowers (1 umbel) at the terminal nodes are limited to eastern and central Brazil. They may be separated with the key provided below. In *P. andersonii*, an unusual species known from a single collection from the area of Diamantina in Minas Gerais, both the generalized and the specialized inflorescence structures are expressed.

KEY TO THE SPECIES OF PEIXOTOA WITH 12 FLOWERS AT THE TERMINAL INFLORESCENCE NODES

1. Leaf glands borne on the abaxial surface of the lamina, above the base and away from the petiole and costa.
 2. Leaf glands stalked, 0.8–1.5 mm in diameter; laminas abaxially golden-sericeous; Bahia.

P. adenopoda C. Anderson.
 2. Leaf glands sessile, 0.2–0.7 mm in diameter; laminas abaxially with T-shaped hairs to loosely tomentose; coastal Santa Catarina.

P. catarinensis C. Anderson.

1. Leaf glands borne at the abaxial base of the lamina at the insertion of the petiole or halfway on the petiole.
3. Petals with the limb oblanceolate and decurrent on the claw; laminas narrowly elliptical; Minas Gerais. *P. andersonii* C. Anderson.
3. Petals with the limb orbicular or broadly elliptical, not decurrent; laminas ovate, elliptical, orbicular, or sometimes lanceolate, oblanceolate, or rhombic.
4. Laminas abaxially densely tomentose to wooly, the epidermis obscured; inflorescence axes densely golden-velutinous, the epidermis obscured; limb of the posterior petal 6.6–9.5 (–10.2) mm long, 5.9–9 (–9.6) mm wide; Minas Gerais (in the Serra do Espinhaço and south of it). *P. tomentosa* Adr. Juss.
4. Laminas abaxially with T-shaped hairs to loosely tomentose, the epidermis always visible; inflorescence axes sparsely to densely white-velutinous, the epidermis always visible; limb of the posterior petal 3.5–6.8 mm long, 3–6 mm wide.
5. Stipules adaxially glabrous in the proximal 1/2–2/3, velutinous-tomentulose in the distal 1/3–1/2 and densely so along the margin, forming a white band; laminas abaxially loosely tomentose with the hairs concentrated on the veins; limb of the posterior petal ca. 1/2 as long and wide as the limb of the lateral petals; limb of the lateral petals 9–10.5 mm long, 8.5–9.5 mm wide; Alto Paraguay. *P. floribunda* C. Anderson.
5. Stipules adaxially velutinous or tomentulose over the entire surface; laminas abaxially evenly pubescent, with T-shaped hairs to loosely tomentose; limb of the posterior petal ca. 2/3 as long and wide as the limb of the lateral petals; limb of the lateral petals (4.3–) 5.2–9.5 mm long, (4–) 5–8.5 mm wide; central and eastern Minas Gerais to eastern Paraná. *P. parviflora* Adr. Juss.

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